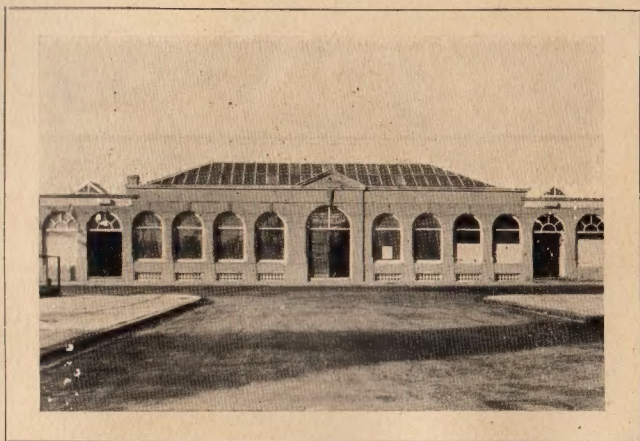


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1929

# THE BEXHILL MUSEUM

A Handbook to  
the Collections.



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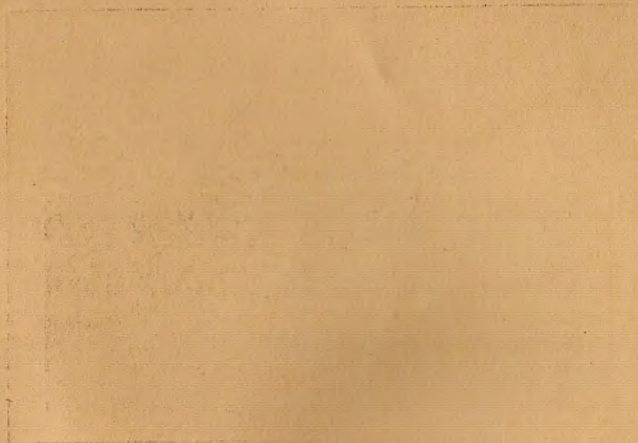
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BEXHILL MUSEUM. INTERIOR.

# THE BEXHILL MUSEUM

A Handbook to  
the Collections

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Compiled by H. J. SARGENT, Curator



## INTRODUCTION

THE BEXHILL MUSEUM, situated in Egerton Park, with the main entrance opposite the Clock Tower on the West Parade, is maintained by the Bexhill Museum Association in collaboration with the Borough Council. It is open free daily, and contains a valuable and increasing collection of considerable educational interest. The institution is greatly appreciated by both residents and visitors, and classes from schools and other organized parties frequently avail themselves of the facilities provided. The work of the Museum is not confined simply to the exhibition of specimens, and it does not exist for the mere accumulation of curiosities; it is a living institution anxious to encourage serious interest in the subjects that come within its scope. While the collections include objects from various localities, displayed with the intention of illustrating some particular phase of knowledge, the greater part of the exhibited material relates to the natural history and archæology of the Bexhill district. Particular attention is paid to the provision of descriptive labels, a factor of considerable importance to the non-scientific visitor.

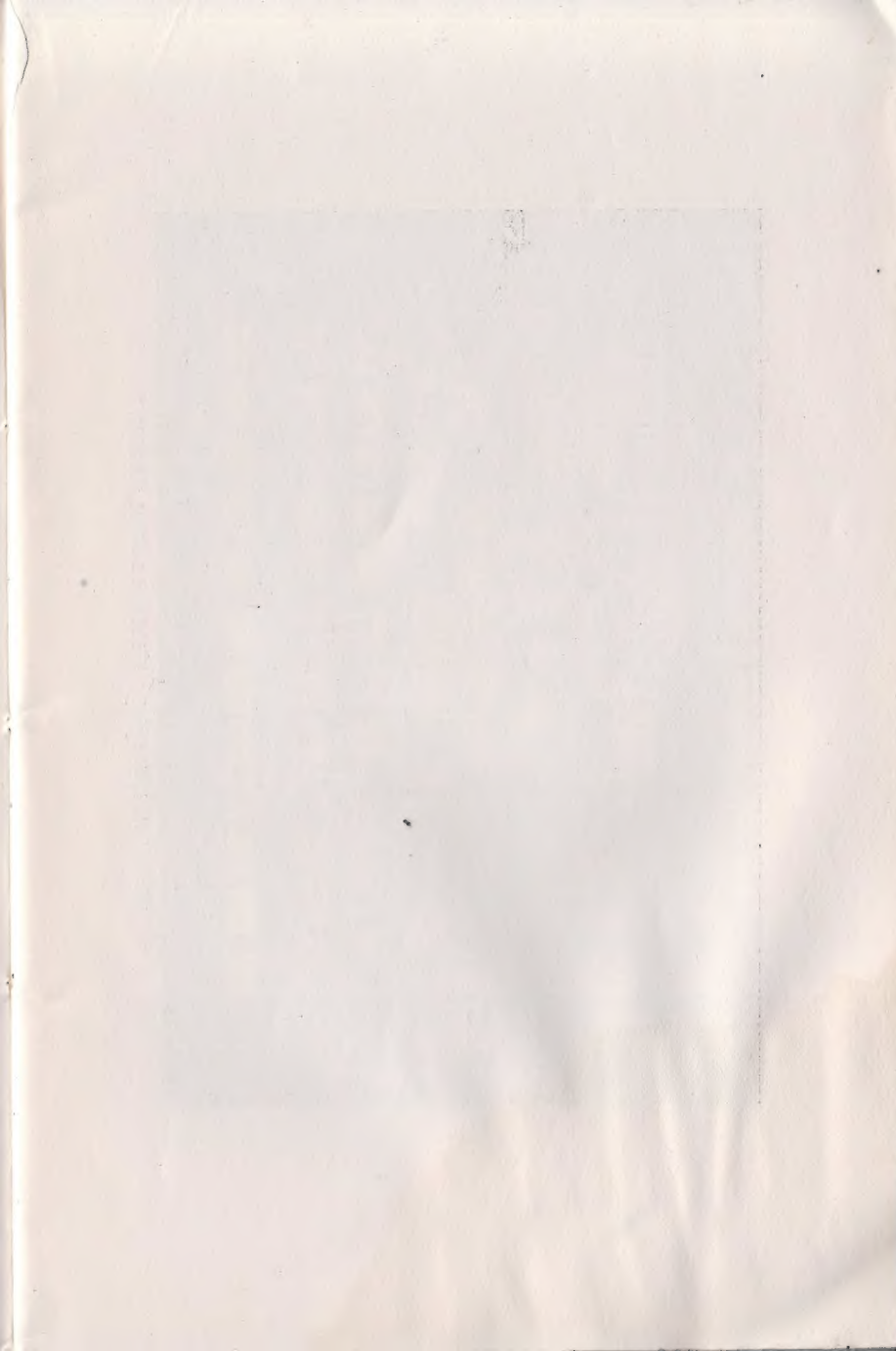
The institution owes its origin to a small committee which met in the autumn of the year 1912 to discuss the desirability of establishing a museum in the Borough of Bexhill. Through the initiative of this committee, funds were raised for the purpose of equipment, the Borough Council granted the use of a building in Egerton Park, and the Museum was formally opened in the summer of 1914. This new venture in the history of Bexhill made remarkable progress, and was soon



regarded as an institution of considerable educational value. Within a short time, however, its activities were curtailed by events connected with the Great War; the building was temporarily utilized for military purposes and the Museum virtually ceased to exist. Certain portions of the collections were stored away, and many objects of interest were returned to the original donors. In 1919, in response to popular feeling, the Museum was re-established, and since that date it has advanced rapidly, necessitating an enlargement of the building in 1924. The early development of the Museum depended almost entirely upon the voluntary efforts of the Rev. J. C. Thompson, F.G.S., whose initiative and energy during a period of successive years resulted in the permanent establishment of the institution. In 1923, subscribers to the funds of the Museum were embraced by the formation of a society with a definite constitution approved by the municipal authorities, and known as the Bexhill Museum Association. At the same time the property of the Museum was vested in trustees for the benefit of the town of Bexhill in perpetuity.

In an institution where the exhibited collections are substantially augmented and re-arranged from time to time, and where general progress is steadily maintained, there can be no finality. A guide-book or catalogue aiming at completeness must necessarily become quickly out of date. The present hand-book, therefore, is by no means comprehensive; it constitutes merely a brief and incomplete epitome of some of the main points of interest in the Museum. The average casual visitor, limited by time, selects for consideration those objects which possess an outstanding personal appeal, and completely neglects others. A similar outlook has been maintained in the following pages, those subjects which pertain particularly to the Bexhill district receiving primary consideration.







BEXHILL MUSEUM. WILD FLOWER TABLE.

## Round the Museum

To facilitate reference, the larger cases are provided with numbers; but owing to frequent re-arrangement it may be found that cases with consecutive numbers are not necessarily contiguous.

### **Wild-Flower Table and Herbarium.**

ON entering the Museum, the visitor will not fail to observe the wild-flower table just inside the main entrance. During the greater part of the year, this table is utilized for the exhibition of fresh botanical specimens which are provided with labels giving the scientific and popular names and other details. The exhibit is very attractive, particularly during the spring and early summer. It stimulates an appreciation of the flowers of the countryside, and is not infrequently the means of initiating a serious interest in botanical studies. The specimens displayed are invariably of local origin, thus admirably illustrating the flora of the eastern portion of the County. The Bexhill district is of considerable botanical interest because of its diversified character. A coastal strip with shingle beaches, some small tidal rivers, extensive marshlands and numerous elevated wooded areas, are all easily accessible to the botanical student, while a little further afield, to the west, are the chalk hills of the South Downs. The Museum possesses a herbarium—mainly of Sussex plants—which is available for reference.



### British Birds.

The collection of British Birds occupies the east and west walls of the building: it is advisable to inspect these cases before turning to the table-cases occupying the general floor-space of the Museum.

There is a divergence of opinion as to the number of birds that are entitled to rank as British; in the compilation of a list many factors have to be considered in determining whether a species should be included or rejected. In the "Manual of British Birds," by Howard Saunders, published in 1889 (2nd ed.), 384 birds are enumerated. "A Handlist of British Birds," published in 1912, contains particulars of 469, while according to a list issued by the British Ornithologists' Union this number has now been increased to nearly 500. The successive increases are largely due to the inclusion of geographical races or sub-species, as well as numerous rare vagrants or "stragglers," not previously inserted in bird-lists. Apart from the definitely resident species, and the regular migrants, many of these accidental visitors—birds on migration out of their normal course—are from time to time recorded from the Bexhill district.

For various reasons it has not been possible to adopt the generally accepted classification in arranging the collection of birds, but as far as possible appropriate specimens have been grouped together so as to facilitate comparison.

Many visitors to the seaside experience some difficulty in accurately identifying the various kinds of gulls, a difficulty largely arising from the changes of plumage these birds undergo. The commonest gull to be seen at Bexhill is the Black-headed Gull, *Larus ridibundus*, L. The black, or rather chocolate-brown hood is seen during the spring and summer, but the majority of the birds lose this distinctive feature by autumn. In winter the head is white, with dark patches behind and slightly below the level of the

eyes. The bill and the legs and feet are red. Young birds are mottled with brown, and have a dark band across the tail feathers, while the feet are yellowish-red. The Black-head is gregarious, and the flocks of gulls that are commonly fed during the winter on the parades and foreshore at Bexhill belong almost exclusively to this species. The seasonal change of plumage often leads to confusion in identification: the absence of the black head during autumn and winter, combined with the general abundance of these birds, is responsible for the erroneous application of the term "Common Gull," a name which should be applied to another species. Examples of the true Common Gull, *Larus canus canus*, L., are exhibited in the collection. The English name is somewhat unfortunate, as this species, generally speaking, cannot be regarded as the most abundant of the gulls. It is a somewhat stouter bird than the Black-head; the back is grey, and the wings are grey with black outer primaries, while the inner quills are banded with black. The underparts and tail are white: the head and neck are white in summer, but streaked with ash-brown in winter. The bill is a greenish-yellow: the legs and feet are of a similar colour in the adult, but in young birds they are dark grey. The Kittiwake, *Rissa tridactyla tridactyla* (L.), is a gull of approximately the same size as the two species already referred to. Except for the black tips to the outer primaries and the black margin of the first primary, the wings are grey; the mantle is also grey, the colour extending to the nape in winter, while the rest of the plumage is white. Immature birds have brown mottling on the back and wings and a bar on the tail. A characteristic feature of the Kittiwake, which may be seen in the specimens exhibited, is the peculiar reduction of the hind toe to a mere vestige. The Herring Gull, *Larus argentatus argentatus*, Pontopp., is a much larger bird. In the adult the head and neck are white, streaked with grey in the winter; the underparts are white, and the back and wings blue-

grey, the outer primaries being black with white tips. The legs and feet are flesh-coloured, and the bill yellow. Immature birds, of which several specimens are to be seen in the Museum, are mottled with brown. The adult plumage is not assumed until the fourth or fifth year. Exhibited close to the Herring Gulls are specimens of the Greater Black-backed Gull, *Larus marinus*, L., the largest of the local forms, with a very dark grey back, and flesh-coloured legs and feet: and the Lesser Black-backed Gull, *Larus fuscus fuscus*, L., distinguished by the slate-grey back and yellow legs and feet. Immature birds are very like those of the Herring Gull. The Glaucous Gull, *Larus glaucus*, Brünn., a rare winter visitor to the south-east coast, is represented by an immature specimen, pale buff in colour, with light brown streaks and mottlings. The adult bird has pale grey back and wings, the rest of the plumage being white, although the head is lightly streaked with ash-brown in winter.

Several species of Terns are included in the collections, and the Skuas are represented by two examples of the Great Skua, *Catharacta skua skua*, Brünn., a large rapacious bird of powerful build, with dark umber-brown plumage abundantly streaked with brown of a lighter tint, and a conspicuous white patch on each wing.

The Petrels form an interesting group of sea-birds. A characteristic feature is the peculiar position of the nostrils, which open at the end of a pair of parallel tubes on the bill. This may be clearly seen in the specimens of the Fulmar Petrel, *Fulmarus glacialis glacialis* (L.), exhibited on the western wall. Large nesting colonies of this bird exist in the Orkneys, Shetlands and Outer Hebrides, but it is essentially a bird of the sea, coming little to land except at the nesting season. On rare occasions during winter, specimens are storm-driven on the south coast. The Storm Petrel, *Hydrobates pelagicus* (L.), known to the sea-farer as "Mother Carey's Chicken," is a small



bird, barely six inches long, with dull sooty-black plumage, and a conspicuous white patch at the base of the tail. It nests somewhat late in the season in Northern Scotland, Ireland, South Wales and the Scillies. In autumn and winter the Storm Petrel has a considerable range over the sea : it is commonly met with far from land, but birds are sometimes blown ashore in an exhausted condition during continuous rough weather. Two examples of Wilson's Petrel, *Oceanites oceanicus*, Kuhl., are exhibited. This bird breeds in the antarctic, migrating northwards in winter, and on very rare occasions reaching the south coast of Britain as a summer visitor.

Ducks and various game-birds are contained in cases at one end of the west wall. Here, too, may be seen specimens of the Gannet, *Sula bassana* (L.), Cormorant *Phalacrocorax carbo carbo* (L.), and Shag, *Ph. graculus*, L. Several specimens illustrating the phases of plumage in the Gannet are exhibited. When hatched the young bird is naked and bluish-black in colour, but it soon becomes covered with thick white down. In its first plumage the general colour of the Gannet is dusky-brown with white spots, but with age the dark colour is gradually replaced with white. The adult plumage, which is not attained until the fourth or fifth year, is white : the head and neck are suffused with a delicate shade of reddish-buff, while the tips of the wings are black. Gannets breed in large numbers on St. Kilda, the Bass Rock, Ailsa Crag, and other localities of a similar nature. In autumn a southward movement occurs and the hitherto crowded breeding-places are deserted. In winter, Gannets occur in the Channel, but they seldom approach the shore, except during severe storms. On rare occasions exhausted storm-driven birds have been found a considerable distance inland.

Representatives of the Alcidae, or Auk family, may be seen at the bottom of Case 38. To residents and visitors at Bexhill the most familiar species is the Guillemot, *Uria troille troille* (L.). Until quite recently

these sea-birds suffered very severely from contact with floating refuse oil, and from time to time large numbers of birds, either dead, or in an exhausted and helpless condition, with plumage clotted and fouled by thick oil, were found on the shore. From specimens exhibited in the case a slight seasonal change of plumage will be noticed. In summer the head and neck are uniformly slate-brown in colour, but in winter the throat and sides of the head are white, with a dark line passing from the eye towards the nape. The Guillemot breeds in large colonies on cliffs in suitable localities all round the British Isles. Flourishing colonies formerly existed on Beachy Head, but these have long since disappeared, although a few pairs have been recorded during recent years. In the Black Guillemot, *Uria grylle grylle* (L.), there is a very marked seasonal change of plumage, and a series of specimens in a case on the western wall will repay careful examination. This bird is a rare visitor to the Sussex coast. It breeds in the Orkneys and Shetlands, many places on the northern Scottish and Irish coasts, and in the Isle of Man. The Puffin, or "Sea Parrot," *Fratercula arctica arctica* (L.), is a curious bird which presents no difficulty in identification, the short, broad, parrot-like bill being a distinctive feature; several examples are exhibited. The Puffin does not breed on the Sussex coast, the nearest breeding-places being on the Isle of White, but specimens—mostly immature—are occasionally driven ashore at Bexhill during rough weather. The Razor-bill, *Alca torda*, L., resembles the Guillemot, but may be distinguished by the broader and more compressed bill, which is marked by white lines. Except during the breeding season, Razor-bills frequent the open sea, but continuous rough weather drives birds ashore.

At the eastern end of the Museum are local specimens of the Bittern, *Botaurus stellaris stellaris* (L.), Heron, *Ardea cinerea cinerea*, L., and Spoonbill, *Plata-*

*Icthyophaga leucorodia leucorodia*, L. The "booming" of the Bittern was formerly a familiar sound in the marshlands of Britain. It is still a regular winter visitor, but it used to breed abundantly in many parts of the country. In the "'sixties," owing to the combined forces of marsh-drainage and incessant persecution, it was only surviving—as a breeding bird—in Norfolk, and even here after 1886 it was presumed to be extinct. In 1911, however, a single nest was located, others were observed subsequently, and during the last few years, under stringent protection, a number of broods have been reared annually. The Heron is a familiar bird on the marshes to the west of Bexhill; the nearest heronry is at Windmill Hill Place, near Hailsham, and several others exist elsewhere in the county. The graceful Spoonbill, with its white plumage, conspicuous crest and broad, yellow-tipped bill, formerly occurred as a nesting bird in Sussex; now it is only a rare visitor to the county.

Some of the diurnal birds of prey—the Sparrow Hawk, *Accipiter nisus nisus* (L.); Kestrel, *Falco tinnunculus tinnunculus*, L.; Common Buzzard, *Buteo buteo buteo* (L.); Hen Harrier, *Circus cyaneus* (L.); Peregrine Falcon, *Falco peregrinus peregrinus*, Tunst., and others—are to be found in the collection, but lack of space forbids more than a passing reference. The fine specimen of the Kite, *Milvus milvus* (L.); is not of local origin, although several isolated instances of this bird occurring as a vagrant in East Sussex have been recorded during recent years. The Kite was formerly a common resident in many parts of the country, but during last century its numbers rapidly decreased; at the end of the century it was confined to central Wales, where in 1905 it is said only five birds remained.

A case of Owls is worthy of consideration. Here we see the Little Owl, *Athene noctua noctua* (Scop.), an artificially introduced, and now thoroughly established species, nesting abundantly throughout the southern half of the kingdom. The familiar Barn Owl, *Tyto*



*alba alba* (Scop.), is represented by several specimens, as well as the Long-eared Owl, *Asio otus otus* (L.), and the Tawny Owl, *Strix aluco aluco*, L. Among the non-local specimens in the same case will be seen the large and handsome Snowy Owl, *Nyctea nyctea* (L.), and the Eagle Owl, *Bubo bubo bubo* (L.). The former is a bird of the Arctic, but occasionally occurring on the mainland of Scotland; the latter is a rare straggler to the British Isles, but as it is sometimes kept in captivity, a few of the recorded occurrences may relate to escaped specimens.

A large wall-case (No. 22) accommodates many of the smaller British birds, and nature students find these specimens of great assistance in facilitating the identification of birds in the open. Special comment must be restricted to some of the rarer kinds, the particular specimens referred to having been obtained in East Sussex. One of the most attractive birds in the case is the Hoopoe, *Upupa epops epops*, L., a passage migrant in spring and autumn on the south and south-east coasts; it has nested from time to time in the south-eastern counties. It is by no means a shy bird, and this fact, associated with its conspicuous markings, unfortunately militates against the long survival of individual birds in this country. The Rose-coloured Pastor, *Pastor roseus* (L.), exhibited nearby, occasionally appears in Britain, sometimes in the company of starlings: an occurrence not surprising when we realize that it belongs to the same family, and has very similar habits. It is a striking bird, the head, breast, wings and tail being black, and the upper and under parts of the body a salmon-pink. Unfortunately the latter colour is fugitive, and the depth of tint in a mounted specimen is not so pronounced as in life. The Golden Oriole, *Oriolus oriolus oriolus* (L.), is a rare spring visitor to the south coast of England, and has been known to nest in the south-eastern counties. William Borrer, in "The Birds of Sussex" (1891) records that he had "the rare pleasure of seeing no less than *fourteen* of

these birds sunning themselves on an old thorn bush " on a common in West Sussex. The Waxwing, *Ampelis garrulus* (L.), represented by two specimens, is a very irregular visitor, but at intervals considerable numbers reach the British Isles. It is remarkable for the curious, red wax-like projections on the tips of the secondary wing-feathers. The Red-spotted Bluethroat, *Cyanosylvia svecica gaetkei*, Kleinschm., is a rare winter visitor to Sussex, although on the East Coast it is a frequent bird of passage in the autumn. The colours and markings of this bird are particularly striking. The throat and breast are covered with a clearly defined patch of brilliant blue, in the middle of which is an elongated spot of reddish-brown; below the blue area are bands of black and chestnut. The White-spotted Bluethroat, *Cyanosylvia svecica cyanecula* (Wolf), a specimen of which is also exhibited, is a much rarer bird; its occurrence in East Sussex has been recorded on a few occasions. The colours and markings resemble those of the former species, but the spot on the breast is white instead of reddish-brown.

At the bottom of Case 22 is a specimen of Pallas's Sand Grouse, *Syrhaptes paradoxus* (Pallas), a bird of particular interest to the ornithologist. It breeds on the steppes of Central Asia and Mongolia. At irregular intervals enormous numbers of birds migrate westwards into Europe, visiting all countries from Norway to Italy, and extending to Ireland and Spain. Several of these "invasions" of the British Isles by Sand Grouse have been recorded, the most important being in 1863 and 1888. In the latter year large numbers arrived along the extent of the east coast, many birds travelling as far west as Ireland and even reaching the Outer Hebrides. In a few instances birds were known to nest, and clutches of eggs, and young birds, were found. A visitation of considerable numbers took place in 1908, and minor occurrences of a similar nature have been recorded, mainly from the eastern counties, on several occasions.



BEXHILL MUSEUM. INTERIOR.



In addition to the British birds, the visitor may also inspect a comprehensive collection of birds' eggs contained in Case 22a. Cases of foreign birds, including a representative series from New Zealand, a small collection from India and Ceylon, and a number of specimens from South America, are also on view.

### **British Mammals.**

Leaving the birds, the visitor may conveniently turn to the cases containing specimens of the smaller British mammals. The Badger or Brock, *Meles meles* (L.), is by no means rare in East Sussex, although it has rapidly decreased in numbers during recent years. It is nocturnal in habits, and is seldom seen unless dug out of its burrow. The food of the Badger comprises roots, acorns, fungi, small mammals, frogs and insects of various kinds. It will dig out the underground nests of wasps in order to devour the grubs. The Common Fox, *Canis vulpes*, L., is represented by two adult specimens and some cubs. In all probability, the fox would have long since become extinct in England—like the wolf—were it not for the protection afforded for the sake of hunting. The Stoat or Ermine, *Mustela erminea*, L., is distributed throughout the British Isles. In summer, the main colour is reddish-brown, the underparts being yellowish-white. In winter a marked change of pelage takes place, the red-brown giving place to white. The change is more pronounced in the north, where in winter white stoats are not infrequent. In the south, however, the winter dress is seldom assumed in its entirety, a certain amount of brown colour invariably persisting. The black tip to the tail is always present, even when the rest of the animal is pure white. The Weasel, *Mustela vulgaris*, Erxl., is smaller than the stoat, from which it may be readily distinguished by the absence of the black tip to the tail. In winter the coat of the weasel becomes pale, but only on rare occasions does it turn entirely white.

The Insectivora are represented by specimens of the

Mole, *Talpa europea*, L., Common Shrew, *Sorex araneus*, L., and Pigmy Shrew, *Sorex minutus*, L., and the Hedgehog, *Erinaceus europaeus*, L. On account of their nocturnal habits the shrews are seldom seen alive, but dead specimens, usually bearing no external sign of injury, are commonly found in country lanes and on field paths during the autumn, a circumstance which has given rise to much speculation, and in some localities, superstition. The Pigmy Shrew is the smallest British mammal, the body seldom exceeding two inches and a quarter in length. The Hedgehog is common in the Bexhill district, and is often found in gardens in the town itself. Its food consists of snails, slugs, worms, and insects of various kinds, but it will also eat birds eggs, young birds, snakes and frogs. One of the exhibited specimens was obtained in somewhat unusual circumstances. The Hedgehog is very fond of milk and the one in question, presumably with the intention of securing the remnants of milk from a discarded condensed milk tin, eagerly thrust its head through the jagged opening at the top. In its endeavours to reach the bottom, it forced its head completely into the tin, which became so firmly fixed that the head could not be withdrawn. It was discovered in a terrified condition, being quite unable to rid itself of the encumbrance, with its vision obscured, and, of course, without any possibility of securing food. The actual tin is exhibited close to the Hedgehog itself.

### Reptiles.

Both the Adder or Viper, *Vipera berus*, L., and the Grass or Ringed Snake, *Tropidonotus natrix*, L., occur in the Bexhill district; the latter species is commonly seen in marshlands in the neighbourhood, but the former is only found in heathy localities, on sandy banks, or in dry woodland clearings. Preserved specimens are exhibited in the Museum, and visitors are able to study the distinguishing features of both reptiles.\* The Adder is

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\*Living Grass Snakes may generally be seen in the Vivarium.

the only poisonous snake occurring in Great Britain and may be recognized by the dark zig-zag line along the back. It seldom exceeds two feet in length. The upper jaw is provided with a pair of long curved fangs. Normally these fangs lie against the jaw pointing backwards; when required for action they move as on a hinge, and are directed forwards. The poison flows from a gland in the head down a hollow in each fang, and is discharged through a tiny orifice at the tip. Adders, as a rule, are timid, and invariably endeavour to escape when disturbed. When cornered, however, they show an irascible temper, and will not hesitate to bite.

The Grass Snake attains a much greater length than the Adder; female specimens four feet long are sometimes found in the Bexhill district: the male seldom exceeds three feet. From time to time unusually large grass snakes, measuring well over five feet, have been recorded from various localities in Great Britain. Eggs of this snake, preserved in liquid, may be seen in Case 45. One of the most interesting peculiarities of snakes is the periodical shedding of the skin. In a healthy grass snake the skin is shed in one piece; it becomes detached at the margin of the jaws, and gradually loosens about the head; the reptile is then able to wriggle out of the skin, which is turned inside out from head to tail. In the exhibited specimens of these cast skins, the transparent, lens-like eye coverings should be noted.

Before leaving the Reptiles, the visitor should observe the specimens of the Blind-worm or Slow-worm, *Anguis fragilis*, L. This creature is known in rural Sussex as the "Deaf-adder," and is often thought to be particularly venomous. It is not a snake, but a lizard, in which the limbs have become reduced to mere vestiges observable only on examination of the internal structure. It is not blind, as one of the popular names implies, and is absolutely harmless to human beings. Its food consists mainly of slugs.

### Marine Zoology.

SEVERAL cases containing natural history specimens from the shore at Bexhill form an attractive feature of the Museum. The close proximity of the institution to the seashore, with its rock-pools and level stretches of sand is advantageous to visitors, who are quickly able to identify, by the aid of the Museum collections, specimens found on the shore. In one case a number of sponges from the Bexhill district will be observed. Visitors who associate the word "sponge" solely with the familiar toilet article imported from abroad, are often surprised to discover that sponges occur in English waters, and in certain localities are common objects of the seashore. The shore-living species, however, are quite small and are not usually recognized as sponges by the uninitiated. The larger forms live in deep water, but as they possess qualities which make them quite unsuitable for toilet purposes, they are of no commercial value. It should be borne in mind that the bath-sponge as we know it, and also each dried specimen in the case, is merely the supporting framework or skeleton of the organism, the living, jelly-like animal tissues having been removed.

Probably the commonest of the littoral species at Bexhill is the Crumb-of-bread Sponge, *Hymeniacidon pannicea*, Johnson, which encrusts the rocks at extreme low-tide mark. When in the living condition the sponge is yellowish-green in colour, but on drying it becomes almost white. To the marine zoologist this species is of considerable interest, and particularly because of its association with the important researches into sponge structure made by Dr. Robert Grant just over a century ago. Certain sponges which normally live below low-tide mark are found on the shore after storms. The most familiar of these is *Chalina oculata*, Bow., sometimes called "Mermaids Gloves." A small series of specimens is exhibited to illustrate the great variety of form. Attention should be directed to the specimens and descriptive labels relat-



ing to the remarkable boring sponge, *Cliona celata*, Grant, which excavates holes in the shells of molluscs, particularly those of oysters.

The various kinds of Hydrozoa contained in the same case are frequently mistaken for seaweeds. These plant-like growths consist of branching colonies of polyps, which are supported by a common horny structure serving the purpose of a skeleton, and are vitally connected with one another by living tissues. The structure of the Hydrozoa may be best understood by a preliminary study of the freshwater *Hydra*, an organism very familiar to microscopists. *Sertularia operculata*, L., or "Sea-hair," has long delicate stems which frequently grow in dense masses on bivalve shells and also on seaweeds, particularly on *Laminaria*. It is common at Bexhill below low-tide mark. The "Sea-fir", *Sertularia abietina*, L., is an erect, evenly branched hydroid of a brown colour. It grows from six to twelve inches high, and is often attached to the shells of scallops and oysters. The "Lobster-horn", *Antennularia antennina*, L., is so named from its resemblance to the feelers of a lobster. It has stiff, jointed stems which give off at regular intervals short, delicate lateral branches. *Hydractinia echinata*, Fleming, is a particularly interesting species. Instead of assuming an erect, plant-like appearance, it grows as a prickly incrustation on univalve shells invariably those that are inhabited by Hermit-crabs. The dried specimens are brown in colour, but when living the polyps are usually pale pink.

The marine worms next claim attention; and we find that this large, and by no means unimportant division of the animal kingdom, comprises a number of definite types so diverse in appearance that their affinity to one another is not at first recognized. One of the most striking forms is the Sea-mouse, *Aphrodite aculeata*, L. It is a broad, thick-set creature, four or five inches long, tapering towards each end. The upper surface is covered with a tangled mass of hairs,

while on each side are broad bands of hairs and bristles which are beautifully iridescent, particularly in sunshine. The white, contorted tubes of the *Serpula*, an entirely different type of marine worm, are commonly seen on the shore at low tide; they are usually attached to stones and shells. The worm which secretes and occupies the tube is provided with little feather-like gills, coloured crimson, which are arranged in two clusters. In a specimen immersed in sea-water, these may be seen in constant motion protruding from the end of the tube. One gill-filament is modified in structure so as to form a kind of tapering stopper, or operculum, which is used to close the mouth of the tube when the worm draws into it. Allied to *Serpula* is *Filigrana implexa*, Berk. In this species, which is an inhabitant of deep water, and not found on the shore, the tubes are very small in diameter, and are associated in dense masses. The beautifully formed tubes of *Pectinaria belgica* (Pall.), are common objects on the sand at Bexhill at low tide, and they frequently arouse the curiosity of the seaside visitor. In shape the tube resembles a cigarette-holder. It is composed of grains of sand of approximately the same size, cemented together and forming a fairly rigid structure. Specimens of the worm itself, removed from the tube, are preserved in liquid in the same case.

A seaside object which is frequently mistaken for a seaweed is the Sea-mat, *Flustra foliacea*, L., of which several examples are exhibited. An examination with a simple pocket lens of a small portion of this substance will reveal that it consists of an accumulation of tiny cells. Each cell contains a living organism—the seaweed-like substance resolves itself into an assemblage of extremely small polypides. The observer is forcibly reminded of the Hydroids which have already been referred to, but the present form of life is more highly organized, bearing some affinity to the worms, and being placed in a phylum or group known as Polyzoa. Over two hundred and fifty species occur in British

waters. Many kinds do not develop in erect colonies like the sea-mat, but form flat incrustations on rocks, shells, seaweeds, and other objects.

A section of the collections relating to the zoology of the shore is devoted to local Echinoderms—the Starfishes and their relatives, the Sea-urchins. Several examples of the common Five-fingers, *Asterias rubens*, L., are exhibited. A starfish is able to move about by means of numerous tube-feet, which are disposed in grooves along the undersides of the rays. These organs are hollow, and are provided with suckers at the extremities. They are flaccid when not in use, but are extended and tense when the starfish is moving. They can be extruded or retracted by a varying amount of water-pressure from within the animal. The small circular disc of a whitish colour to be seen on the upper surface of the starfish sometimes arouses considerable interest and speculation. This object, easily detected in the preserved specimens on view, is known as the madreporite. It is minutely channelled and perforated, and serves the purpose of a filter, water being drawn through it into the body of the starfish in connection with the water-vascular system which operates the tube-feet. The Sun-star, *Solaster papposus*, Fab., is frequently found on the shore after storms. It grows to a considerable size, and examples measuring eight or nine inches across are occasionally found. It possesses short, broad rays varying in number from ten to sixteen. As a rule it is much more brightly coloured than the common five-fingers. The Feather-star *Ophiothrix fragilis*, Abilg., lives mainly in deep water, although small specimens are occasionally found in rock pools at extreme low-tide mark. It has a well-defined central disc, and the rays are fringed with spines. Examples of the Snake-star or Sand-star, *Ophiura ciliaris*, L., are sometimes found on sandy parts of the shore. It has smooth rounded rays, and is somewhat hard and rigid.

Although in general appearance Sea-urchins do not seem to bear any resemblance to starfishes, anatom-

ically the two types of animals are closely related. The sea-urchins are usually more or less globular in form, or are heart-shaped; they possess a rigid calcareous covering composed of small plates, which fit together to form a continuous shell or test enclosing the vital organs. Numerous protective spines are usually present; they are mobile, and each one is attached to the test by means of a ball and socket joint. Five or six species of sea-urchins are represented in the collections. The commonest form, *Echinus miliaris*, L., is found among the rocks at extreme low tide mark. The spines are usually olive-green, with purple tips. The examples of the large Edible Sea-urchin, *Echinus esculentus*, L., are British specimens, although not of local origin. They should be closely examined, for by reason of their large size the main external structural features of these animals are easily distinguished. In those which are denuded of spines, the balls or knobs upon which the individual spines were articulated can be clearly seen, as well as the rows of perforations through which the tube feet were extended. The mouth is in the middle of the underside. The enamel-tipped teeth—five in number—sliding in little grooves, and the accompanying parts, which together form the curious elaborate structure known as "Aristotle's Lantern" are exhibited separately. The common Heart-urchin, *Echinocardium cordatum*, Penn., is frequently found on sandy parts of the shore. The spines are long, fine and flexible. It differs in shape from the foregoing species. The mouth on the underside is not central, but is situated towards the broader end, and a prolongation of the test forms a scoop-like projection over the aperture: there is no "Aristotle's Lantern." The smallest species exhibited, the Pea-urchin, *Echinocyamus pusillus*, O. F. Mull., measures less than half-an-inch across; it is seldom found alive on the shore, but the empty shells or tests often occur in the flotsam and jetsam after a storm.



The local littoral Crustacea contained in Case 5 are worthy of inspection by those who frequent the shore. The active, pugnacious Shore-crab, *Carcinus maenas*, Penn., and the Edible Crab, *Cancer pagurus*, L., are represented by several specimens. Those of the latter species are small; the large ones used for human consumption are found only in deep water. Among other kinds we notice the Masked Crab, *Corystes cassivelaunus*, Penn., with curious markings resembling a human face on the back, and long, jointed antennæ fringed with bristles. In the female, the claws are quite small, but in the male they are of considerable length and project conspicuously in front of the body. This crab is not very active: it is sometimes found near low-tide mark buried in the sand with its antennæ and claws just projecting above the surface. In the swimming crabs, the extremities of the hind limbs are broad and flat, like paddles. Belonging to this group are the Velvet Fiddler Crab, *Portunus puber*, L., a brightly coloured and extremely active species; the yellowish-brown Cleanser Swimming Crab, *P. depurator*, L.; and the less common Henslow's Swimming Crab, *Polybius henslowii*, Leach, which possesses a remarkably flat and almost circular body. The Porcelain Crab, *Porcellana platycheles*, Penn., is a small species with a round body and broad, flat claws, fringed with hairs. It occurs abundantly under stones in muddy pools among the rocks, and when disturbed will draw its legs and claws close together, making itself as inconspicuous as possible. The tiny Pea Crab, *Pinnotheres pisum*, L., has the remarkable habit of living in intimate association with shellfish, particularly the common mussel: specimens may be found on forcing open the shells of these molluscs. The difference in size of the two sexes is very pronounced, and is clearly shown in the specimens exhibited. Several examples of the Thornback Spider Crab, *Maia squinado*, Herbst., are on view. The largest, obtained in the Bexhill district, measures seven inches across the back. The shell or carapace is

roughly triangular in shape, being pointed in front, and furnished with two prominent diverging spines. The whole of the carapace and some of the claw joints are studded with spines and tubercles. The long, slender legs appear to indicate an active creature, but as a rule this crab is not very agile; its movements are slow and deliberate. The Thornback is eaten in some places, but as an article of food it is considered inferior to the true edible crab.

A small specimen of the Common Lobster, *Homarus gammarus*, is contained in the collection. It was obtained on the shore, although this species is seldom found between the tide-marks. In the Squat Lobster, *Galathea squamifera*, Leach, the body is flattened, and is ridged and furrowed transversely. A close examination will reveal structural features which separate it from the true lobsters, and in spite of its general lobster-like appearance it belongs to an entirely different family.

Some of the most curious of the marine crustacea are the Hermit Crabs, of which several species are found in British waters. Two large examples of the commonest local form, *Pagurus bernhardus*, L., are exhibited. These crustaceans display a marked divergence in form and habits from the ordinary type. The hind portion of the body of the crab is soft and unprotected by a shelly covering. The animal, therefore, secures protection by living in the shell of a mollusc—such as a periwinkle, dog-winkle, or whelk—selecting a kind most suitable to its own size, and changing from one shell to another as growth proceeds. The soft, unsegmented and elongated abdomen of the crab is twisted and at the end are hook-like appendages which enable the animal to secure itself firmly to the inside of the shell. From the specimens exhibited it will be observed that one claw—invariably the right—is much larger than the other; the antennæ are of considerable length, and the eyes are on long mobile stalks. Whenever it moves the Hermit Crab drags its shell along too,

and it voluntarily vacates a shell only when growth necessitates removal to a larger domicile.

The Ship Barnacles, *Lepas*, are so different in appearance from crabs and lobsters that their inclusion with the crustacea may arouse some speculation. These remarkable organisms, with long, jelly-like stalks and multivalve shells, are allied to the more familiar Acorn Barnacles, *Balanus balanoides*, L., which encrust the rocks and groynes in infinite numbers. Both forms were originally thought to be molluscs. It was not until 1829, when the early stages of development were investigated, that their affinity to the crustacea was recognised. These curious animals undergo a remarkable series of transformations. In early life the barnacle is a free swimming creature, leading a very active existence in the water. At intervals, successive moults accompanying definite structural changes take place, and the little creature settles down upon some solid object, where it assumes the adult form and remains permanently fixed. The mature barnacle, with its multivalve shell and its adaptations for a sedentary life, presents a marked contrast to the agile larval form. Ship-barnacles in enormous numbers are commonly attached to the bottoms of ships, and they also occur on planks, barrels, cork floats, and other objects that have been in the sea for some time. Floating bottles with barnacles attached to the corks frequently drift on to the shore and several examples are exhibited. A large jar, festooned with barnacles which fastened themselves to the metal cap, is of particular interest.

In addition to the specimens illustrating local marine zoology, a certain number of selected objects of a similar character from other parts of the world are also exhibited. Many visitors on entering the Museum for the first time are attracted by the excellent specimen of the Giant Crab of Japan, *Macrocheira kaempferi*, which is to be seen on the wall at the western end of the building. This specimen was obtained from

Enoshima, Japan. It belongs to the same family as the British Thornback Crab already referred to. The body measures fourteen inches across. The claws and legs are of extraordinary length; each claw is five feet long; the longest legs measure three feet five inches, and the shortest two feet two inches.

A specimen of the Glass-rope Sponge, *Hyalonema sieboldii*, from Japan, may be seen in a small case on the south wall. The sponge consists of a rounded mass with a flattened top, about five inches in diameter; projecting downwards are numerous twisted fibres, somewhat brittle, and closely resembling strands of spun glass. These fibres form a compact "rope" nearly a foot long. When first brought to Europe about a century ago, examples of these glass-ropes, without the sponge-body, were thought to be artificial productions. The glass rope is composed of very long siliceous spicules which serve to root the sponge in the mud at the sea-bottom. On examining the specimen in the case, an incrustation forming small disc-like bodies will be observed at the upper end. This is a distinct organism, a zoophyte known as *Palythoa*, which is invariably found in association with the sponge.

In the same case are to be seen the exceedingly beautiful and delicate skeletons of another sponge known as Venus's Flower Basket, *Euplectella aspergillum*, from the Phillipines. When in the living condition the elaborate siliceous skeleton is concealed by gelatinous animal tissue.

### **Mollusca** **General Collection.**

The contents of the table-case No. 7 is designed to form a simple introduction to the study of the Mollusca. The specimens are grouped to illustrate the main classes of this division of the animal kingdom; each group comprises typical examples accompanied by descriptive



labels and preparations displaying structural features. The mollusca, it will be observed, is a large and important phylum of the invertebrata. Its individual members are singularly varied in appearance and habit; it includes such widely diverse forms as the large, fleshy, active cuttle-fish and octopus, and the sedentary mussel and oyster. An adjoining case, No. 6, contains specimens of foreign shells, including numerous kinds of Cowries (Cyprididae), Olives (Olividae), Cones (Conidae) and Ear-shells (Haliotidae).

**Local Mollusca.** Over 700 distinct species of marine mollusca have been recorded as occurring in the waters around the British Isles. Many are rare or purely local in distribution. Case No. 4 is devoted entirely to the exhibition of marine shells from Bexhill; it is interesting to note that practically all the specimens were obtained on the shore at low tide. In glancing at this case attention is immediately arrested by a series of specimens illustrating colour variation in the Quin or Queen Scallop, *Aequipecten opercularis*, L. The shells display delicate shades of yellow, orange, brown and purple; some are banded with tints of a darker hue; a form with dark lines running down each rib (var. *lineata*, da Costa) will be noticed. Pure white specimens are also exhibited. This species, known locally as the "Squince," is said to have derived its name from the actor and epicure Quin, who was particularly fond of eating the mollusc when staying at Brighton.

During recent years several foreign species have become established in British waters. Two of these, both North American in origin, are now found at Bexhill, although they were formerly unknown. One, the Slipper Limpet or Crow-oyster, *Crepidula fornicata*, L., seems to have made its first appearance at Grimsby in 1887, and since that date examples have been found on various parts of the coast, and in some localities it is very abundant. The shells are common at Bexhill.

The other species referred to is known as *Petricola pholadiformis*, Lam. A few shells had been found in 1896 in two or three places on the East Coast, and in 1900 large numbers occurred at Sandwich. Specimens of this interesting mollusc are also frequently found at Bexhill.

A collection of British land and fresh-water shells is contained in Case 9.

### Butterflies.

A collection of British butterflies is exhibited in table-case No. 37. About sixty species of these insects are known to occur regularly in the British Isles; this number may be slightly increased by the inclusion of a few migratory kinds which are more or less erratic visitors from the Continent. A certain number of the native species are restricted in their distribution, and a few kinds are definitely confined to special localities. In the collection the species which occur in East Sussex are indicated by small blue discs placed on the left side of the labels. As far as possible each kind is represented by examples of the male and female, and both upper and under sides are shown. The difference in the markings between spring and summer broods in certain kinds (particularly the "Whites") should be noted. The largest of the British butterflies is the Swallow-tail, *Papilio machaon*; it is now confined to certain areas in the fens of Norfolk and Cambridge. The rarest of the Whites (Pieridae) is the Bath White, *Pontia daplidice*. Nearly all the specimens recorded from the British Isles have been captured on the south and south-east coasts, and they may be regarded, almost with certainty, as migrants from the Continent. The species is more or less common in southern Europe and in parts of Asia. In the absence of authentic British examples, some specimens of the Bath White from Mesopotamia are inserted in order to complete the collection.

The Clouded Yellow, *Colias croceus*, is a migra-

tory species, its appearance in this country being somewhat erratic; during certain years it may be abundant, and then for a succession of years very scarce. The same remarks apply to the Pale Clouded Yellow, *Colias hyale*, but its visits are less frequent. It appears to have bred in the south of England, but the circumstances were exceptional. The Purple Emperor, *Apatura iris*, is named from the striking purple sheen to be seen on the wings of the male insect when viewed at a suitable angle. It is a rare butterfly, being local in distribution; it occurs in East Sussex. This species is noted for its habit of flying high in the air, and it is seldom seen at close quarters. The Camberwell Beauty, *Vanessa antiopa*, is a large and handsome butterfly which is related to the familiar "Tortoiseshells." It is a rare and very erratic visitor to the British Isles, but is common in many parts of Europe. It has been known to occur in considerable numbers in England: in the middle of the 18th century "it appeared in such prodigious numbers . . . that the entomologists of that day gave it the appellation of the 'Grand Surprise.' " Among the Fritillaries may be noted the Queen of Spain Fritillary, *Argynnis lathonia*, another species which is a rare and erratic visitor. The large silvery patches on the underside of the hind-wings, and its small size, distinguish it from the Silver-washed Fritillary, *A. paphia*, which it otherwise resembles. The beautiful Large Copper Butterfly, *Heodes dispar*, is now, unfortunately extinct in the British Isles. Formerly it was by no means uncommon in the Fens, but it disappeared about the middle of the 18th century. A distinct race known as *H. rutilus* is abundant on the continent of Europe, and because of its similarity to the British Large Copper, specimens of this form are inserted in the collection.

The Museum possesses a small collection of butterflies from India; it is contained in a special cabinet, and may be inspected upon application.

### Wasps' Nests.

Exhibits relating to social wasps are contained in Case 19. Seven distinct species of the Vespidae or social wasps occur in the British Isles. Six of these, including the Hornet, construct elaborate nests and live in organized communities which sometimes number several thousand individuals. The remaining kind is quite distinct in its habits; it makes no nest and lives as a "cuckoo" in the nests of one of the other species. The most familiar wasps in the Bexhill district are the Common Wasp, *Vespa vulgaris*, and the German Wasp, *Vespa germanica*. Both kinds usually construct nests underground; some large examples are exhibited in the case. The Tree Wasp, *Vespa sylvestris*, usually makes a nest in a hollow tree, but sometimes in a hole in the earth, while the Norwegian Wasp, *Vespa norvegica*, invariably uses a bush as a nesting site, and not infrequently selects a gooseberry bush for this purpose. The Hornet, the largest of the British Wasps, is a very rare insect in East Sussex. Reports on the occurrence of the Hornet often prove erroneous on investigation; the large males and the perfect females, or queens, of the other species are often mistaken for hornets.

A wasps' nest is constructed of "wasp-paper," a fragile material manufactured by the insects from wood fibre. The raw material is gathered from fence-posts, trees, etc., and is mixed with saliva so as to form a pulp-like substance which can be spread in thin layers. The Common Wasp as a rule utilizes old and weathered wood, but the German Wasp prefers much sounder material: the nests of the two species thus differ considerably in colour. A wasps' nest owes its origin in the spring to the energies of a single female, or queen, a member of a community of the previous year who has survived the winter. The queen constructs, unaided, a small nest and rears a number of worker wasps which are imperfect females. These collectively take over the enlargement of the nest and the rearing of other



individuals from more eggs laid by the queen. After the appearance of the first workers the queen does not leave the nest and the laying of eggs in cells made by the workers becomes her sole occupation. The population of the nest increases rapidly during the summer, enormous numbers of worker wasps being produced. In the early autumn, males and perfect females appear. The latter, after pairing, seek a convenient place in which to hibernate during the winter, and those that survive until the following spring become the queens of the new generations. In the meantime the advent of cold weather causes the complete dissolution of the wasp community. The original queen, the males and the workers die off, and the nest itself falls into decay.

### **The Dispersal of Fruits and Seeds.**

The contents of certain cases have been arranged to demonstrate special branches of nature-study, and these cases often receive diligent attention, particularly by those engaged in educational pursuits. As an example we may select the case illustrating the dispersal of fruits and seeds (No. 40). Seeds are constantly distributed by natural means without any express adaptations to facilitate such dispersal; birds undoubtedly play an important part in this direction. The object of this exhibit, however, is to demonstrate that many seeds are specially adapted for particular methods of dispersal. The specimens are divided into groups according to the agency mainly responsible for distribution. The four agencies thus illustrated are as follows: (a) The plant itself, where the ripe seeds are forcibly expelled by the twisting or curving of certain parts, as in the Narrow-leaved Vetch, or in the Crane's-bill. (b) By water: many seeds are carried long distances by rivers and ocean currents, and are adapted for this method of dispersal. (c) By wind. In this group are some elegant examples—the Dandelion and Goatsbeard, the Cotton-plant, *Gossypium*, the Cape Silver-tree,

*Leucadendron*, and others. (d) By animals. The fruits or seeds in this group are provided with hooks which catch into the coats of passing animals, and are thus carried away from the place where they grew. In this division both British and foreign examples are displayed; a specimen of the fruit of the South African Grapnel Plant, *Harpagophytum procumbens*, in which the hooks are developed to a striking degree—probably affording protection of the fruit, as well as contributing to its dispersal—is worthy of special study.

### **Boring Animals.**

Case No. 36 is designed to illustrate the destructive effect of certain boring animals in various hard substances. We see specimens of the Shipworm or *Teredo*—a mollusc which makes extensive borings in submerged timber. The pieces of timber attacked by the *Teredo* that are here displayed admirably illustrate the serious depredations that can be committed by this mollusc. The hulls of wooden ships and the timber work of harbours, piers and sea-defence works, are all liable to attack. Metal sheathing and the use of broad-headed nails placed close together have been found effective in protecting submerged timber; chemical treatment of the material before use has to a certain degree also been found a satisfactory preventative. A fragment of the old Chain Pier at Brighton (destroyed in 1896) showing the use of broad-headed nails, is exhibited. Other marine boring molluscs, and the depredations they commit, are also illustrated.

In the same case are specimens, with descriptive labels, illustrating various kinds of wood-boring insects. A prominent place is given to the Death-watch Beetle, *Xestobium rufovillosum*, and its harmful effects in connection with the timber work of buildings. A large piece of oak, riddled with holes, removed from the roof of Westminster Hall, London, during the extensive repairs, which were completed in 1923, affords the visitor an opportunity of studying the damage com-



YOUNG VISITORS AND THE VIVARIUM.

mitted by this insect to the oak timbers of a famous historic building. A piece of an oak beam from the parish church at Ninfield, near Bexhill, also shows extensive borings made by the Death-watch Beetle. The beetles and the larvæ exhibited were removed from this piece of timber.

The Goat Moth, *Cossus ligniperda*, L., is included among the boring insects; the caterpillars of this moth make tunnels in the stems or trunks of many kinds of trees—willow, poplar, sycamore, birch, elm, beech, and various fruit trees. The softer kinds of wood are commonly attacked, and a large number of caterpillars may infest a single tree. The caterpillar stage of this insect lasts for about three years, but under exceptional conditions this period may be extended.

#### **Vivarium.**

Probably the most generally attractive department of the Museum is the Vivarium.

Specially constructed cases with ventilated compartments are provided for the reception of small animals. Insects, spiders and similar creatures, molluscs of various kinds, and reptiles and batrachians are from time to time exhibited. Small tanks are provided for the aquatic forms. These exhibits are continually changed: the number and variety of the species on view at any particular time depends to a large extent upon the season. A large proportion of the inhabitants of the Vivarium are of British origin, but creatures from other countries are frequently included. The Vivarium has proved particularly valuable as an aid to the teaching of nature-study in connection with the numerous educational establishments in Bexhill and the vicinity.

#### **Geology.**

The oldest geological strata exposed in the county of Sussex are the Purbeck Beds, which form relatively small faulted inliers in the neighbourhood of Whatlington, Mountfield and Brightling,

to the north of Bexhill. These beds were formerly of considerable economic importance, being extensively worked for limestone, but surface quarrying on any considerable scale has long since ceased. Borings in connection with the Sub-Wealden Exploration during the latter part of last century revealed the presence of gypsum in the lower beds of the series, and the seams producing this mineral are now worked in extensive mines in the neighbourhood of Mountfield. Specimens illustrating the varieties of gypsum, as well as portions of cores from borings in this locality, are exhibited in Case 14a.

The formations known as the Hastings Beds, or Lower Wealden, are of freshwater origin, and were deposited above the Purbecks; they comprise, in ascending order: (a) the Fairlight Clays, (b) Ashdown Sands, (c) Wadhurst Clay, and (d) Tunbridge Wells Sand. The southern half of the town of Bexhill is situated mainly on Ashdown Sand, the characteristic features of which are well displayed in the cliff-sections to the west, and the section of Little Galley Hill on the east. North of the railway line (Brighton Section), Wadhurst Clay forms the surface beds, with areas of Tunbridge Wells Sands on the more elevated ground. Exposures of the latter formation exist in road cuttings near the parish church.

It is of interest to note that the Wadhurst Clay largely furnished the raw material—clay-ironstone—for the support of the Wealden iron industry, which attained its maximum development at the close of the 16th century. At this time a large number of iron furnaces and forges existed in East Sussex, the nearest one to Bexhill being at Buckholt. The iron industry suffered a rapid and complete decline during the 18th century; the last furnace to be finally extinguished was at Ashburnham, seven miles north-west of Bexhill.

At Galley Hill, Fairlight Clays are in evidence, capped in places by Ashdown Sand; the complicated faulting in this area is of particular interest to geolo-





RESTORATION OF IGUANODON.

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(Nat. Hist.).

gists. A series of local rock specimens, with explanatory labels, as well as geological diagrams and maps, may be inspected in the Museum.\*

A representative collection of local fossils is contained in Cases 10 and 14. The outstanding exhibit is a series of natural casts of footprints of *Iguanodon*, which were obtained in the Bexhill district. The *Iguanodon* was one of the large reptiles of the Mesozoic era; it is included in the Dinosauria ("terrible lizards"), an order embracing a variety of reptilian types which are noted for extraordinary peculiarities of structure, and for the gigantic proportions attained. The illustrations representing restorations of the *Iguanodon*, and a large photograph of a complete skeleton should be inspected. This extinct reptile was herbivorous; it habitually walked upon its hind limbs, and probably used its smaller fore-limbs for grasping the branches and leaves of the plants upon which it fed. The massive tapering tail undoubtedly served to balance the creature when resting on the hind limbs, and in all probability aided it in swimming. The hind-limbs had three diverging, thick-set toes, each possessing a sharp claw; the feet resembled on a large scale those of a typical running bird. The short fore-limbs terminated in four digits, and a curious pointed spur standing out like a thumb. In connection with the early attempts to reconstruct the probable appearance of the *Iguanodon*, this spur was thought to be a horn, and in some of the first illustrations is depicted on the front part of the

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\*For recent detailed information on local geology reference should be made to the following publications: "The Geology of the Country near Hastings and Dungeness," by H. J. Osborne White (Memoirs of the Geological Survey: England, 1928). "The Geology of the Eastbourne-Hastings Coastline," by H. B. Milner and A. J. Bull (Geologists' Association, London, 1925). Copies of this pamphlet may be obtained at the Museum. Price 1/6.

head. The head itself was long and narrow, with comparatively small eyes. The jaws were toothless in front, but at the sides were rows of serrated teeth. Some specimens of the teeth are exhibited, and in Case 10 are many bones including a series of vertebræ, a number of toe bones, and a specimen of the bony spur or "thumb" already referred to. These were all obtained from East Sussex. Several distinct species of *Iguanodon* have been described; the largest measured about 30 feet from head to tail, and when standing erect was approximately 15 feet high. Peculiar interest is associated with the fact that the footprints of these animals, preserved as fossils, occur abundantly in the Wealden Beds exposed in certain areas on the foreshore at Bexhill. The occurrence of these footprints, as well as natural casts of footprints, on the East Sussex coast was observed in the early part of last century, and they were originally thought to be impressions made by the feet of gigantic extinct birds. Later on, however, the probability of their reptilian origin was advanced, and discoveries of fossil bones of the *Iguanodon*, including those of the hind-limbs, established the fact that they were really the footprints of this animal. Communications to the "Quarterly Journal of the Geological Society" between 1846 and 1862—in which are numerous references to the occurrence of the footprints at Bexhill—indicate that they created much interest and speculation amongst the geologists of the time. A few years ago, the Rev. J. C. Thompson, F.G.S., again called attention to the presence in this district of casts of these "footprints on the sands of time," and largely through his energy specimens were deposited in the Museum. Possibly the application of the word "casts" needs some explanation. The specimens referred to are not the actual footprints; they are casts which were produced in an entirely natural manner soon after the footprints themselves were made. The creatures, walking in their characteristic erect manner on soft ground, made fairly deep impressions. Fresh material

in the form of sediment then filled these hollows, and was deposited over the surrounding surface; this becoming consolidated, reproduced the footprints in much the same way as plaster of Paris will form a cast when poured into a mould.



NATURAL CAST OF FOOTPRINT OF IGUANODON.

The measure represents 3 inches.

A cast footprint, differing from the usual type, with more elongated and compressed digits, is exhibited in Case 10. It is attributed to the *Megalosaurus*, another type of Dinosaur—a predaceous reptile, not so heavily built as *Iguanodon*.

Wealden mollusca are represented (Case 14) by several species of *Cyrena*, *Unio* and *Viviparus* from the Wadhurst Clay and Ashdown Sand. A fine specimen of the large river mussel, *Unio valdensis*, from the fore-shore reefs at Bexhill may be observed. An exhibit worthy of special mention is a large polished slab of rock which is mainly composed of the shells of a fresh-water snail, *Vivipara* (*Paludina*) *fluviorum*. This material is from the Weald Clay at Petworth, and is known as Petworth or Sussex Marble. The marble occurs in layers varying from a few inches to a foot or more in thickness; it has been much used for monumental slabs, columns, and other work: examples may be seen in many Sussex churches.

Several specimens illustrating the characteristic features of the Wealden fish, *Lepidotus mantelli*, Ag., are of special interest. This ganoid fish is apparently allied to *Lepidosteus*, the "bony-pike" existing at the present time in the rivers of North America. The body was covered with large, thick, rhomboidal scales of a bony nature, coated with enamel, and arranged in definite oblique lines. Parts of the head of *Lepidotus* (Case 14) should be closely inspected: some of the teeth may be observed in position on the lower jaw. The teeth, which appear to have been numerous, were used for crushing purposes, being small and rounded; they were successional, new teeth coming into position and replacing others that had ceased to function. The smooth, shiny, black scales, and detached, isolated teeth of *Lepidotus* are commonly found in quarries in East Sussex, the teeth being known to quarry-men as "fishes' eyes."

The fossil remains of crocodiles, *Goniopholis*, are occasionally found in the lower Wealden strata, particularly in Wadhurst Clay. A number of the cone-shaped, striated teeth, as well as some pitted, bony plates which formed a protective armour to these animals, are exhibited.



Plant remains of the Wealden are of special interest; the Fairlight Clay particularly has yielded a large amount of material, including representatives of the Horse-tails (Equisetales), Ferns, Club-mosses (Lycopodiales), and Cycads, as well as Conifers (Case 14). Lignite commonly occurs in thin seams, and may be seen in the foreshore reefs of Ashdown Sand at Bexhill. An exposure of lignite near the coast here in the early part of last century gave rise to a futile scheme for coal mining. After the expenditure of a considerable sum of money (stated to be £80,000) in the erection of machinery, and the sinking of shafts, the project was abandoned.

### **Minerals.**

A collection of metallic ores is contained in Case 3. A special exhibit illustrating the various forms of Quartz—the most abundant and widely distributed of all minerals—is to be seen in Case 39, and in an adjoining case (No. 35) will be found a fine series of polished pebbles; the majority of these specimens were obtained on the south-east coast.

### **Stone-Age Antiquities.**

During recent years the study of prehistoric man has undergone remarkable progress, and at the present time many people are interested to a greater or lesser degree in our primitive forerunners. That this interest is indeed widespread, is indicated by the fact that a large number of visitors view with evident appreciation the collection of Stone-Age antiquities in the Museum. The recognized stages of development in prehistoric time are as follows: Eolithic (Dawn of the Stone-Age), Palaeolithic (Old Stone-Age), and Neolithic (Later Stone-Age), followed by the Bronze and Iron Ages, the latter merging into our own historic time. The first division has been the subject of much controversy during recent years. Rudely chipped flints of a reddish-brown colour from

certain high-level gravels in the south of England are regarded by some authorities as "Eoliths," the earliest deliberately worked stone implements of primitive man. On the other hand, certain archaeologists maintain that in many cases these flints owe their appearance to fractures due entirely to natural forces. A number of typical specimens of these eoliths from the North Downs near Ightham, Kent, are exhibited. Some are from the collection of the late Benjamin Harrison, whose name is indelibly associated with this particular type of worked flint. A number of chipped river-drift implements of Palæolithic Age from Hampshire gravels are worthy of careful examination. To the average visitor these specimens have a greater appeal than the eoliths just mentioned, for their human workmanship is undeniable. In Neolithic times man fashioned his implements by grinding and polishing as well as by chipping. Various neolithic implements—hammer stones, scrapers and axe-heads—from the Eastern South Downs are exhibited. A large axe, nine inches long, ground to a sharp edge at the broader end, is of particular interest. Numerous scrapers, some celts, and some arrow-tips from Bexhill and the immediate neighbourhood will be noticed.

It should be clearly understood that the phrase "Stone-Age" is merely a convenient term applied to a particular stage of human development. It is obvious that the advance of mankind towards civilization has been irregular; while in some parts of the world highly cultured peoples were in existence, in other places, at the same time, races were still in their stone age. Until recent years stone-implements were in constant use in many parts of the world. The Museum possesses numerous examples of stone-implements from other countries, and it is of considerable interest to compare the specimens from Egypt, India, North America, and elsewhere with those of European origin.

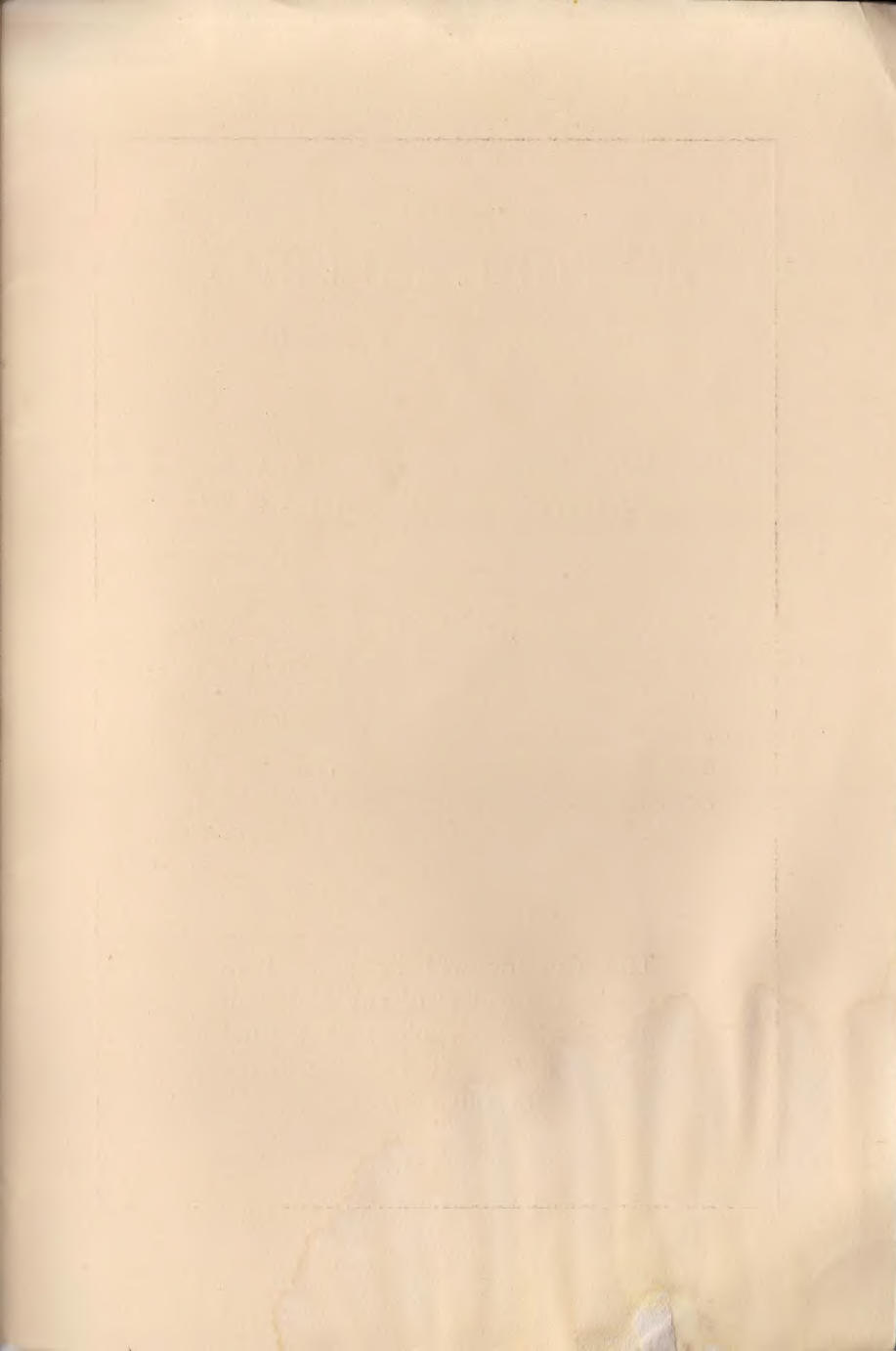
In close proximity to the prehistoric antiquities, is a small series of modern counterfeit flint arrow-heads.

It may not be generally known that when the archæological importance of stone implements began to be realized, and private collectors and museums evinced a desire to obtain specimens, imitations made their appearance. At first these forgeries were not always recognized, and persons of high scientific attainments were sometimes deceived. Later, the rapid progress of knowledge caused collectors to be more discriminating; this factor, combined with over-production and various indiscretions on the part of counterfeiters, was responsible for a rapid decline in the manufacture of these spurious antiquities.

**Local History.** An endeavour has been made to acquire antiquities of local interest, and to accumulate other material illustrating the history of Bexhill. Unfortunately, lack of space precludes the exhibition of the collection of local maps, plans and views. These may be inspected by persons interested upon application to the Curator.

**Library.** The small technical library of the Museum Association is accommodated in a bay near the main entrance. The library contains books and periodical publications dealing with subjects embraced by the scope of the Museum. They may be consulted by bona fide students upon application to the Curator.







# BEXHILL MUSEUM

Admission Free

WEEKDAYS - 10 to 5

SUNDAYS - 10 to 12; 2 to 4

FOR the benefit of schools and organized parties connected with institutions of various kinds, free admission to the Museum during hours when it is closed to the public may be obtained by arrangement with the Curator. Applications, with particulars, should be forwarded several days before the proposed visit.

The Curator will be grateful to receive particulars of any finds connected with archaeology or natural history which may be made in the Bexhill District.